

A method of manufacturing a modified atmosphere package comprises supplying a first package including a non-barrier portion substantially permeable to oxygen. A retail cut of raw meat is placed within the first package and the first package is sealed. A second package substantially impermeable to oxygen is supplied. The first package is covered with the second package without sealing the second package so as to create a pocket between the first and second packages. A mixture of gases is supplied into the pocket. The gas mixture comprises from about 0.1 to about 0.8 vol.% carbon monoxide and at least one other gas to form a low oxygen environment so as to form carboxymyoglobin on a surface of the raw meat. The oxygen is removed from the pocket so as to sufficiently reduce an oxygen level therein so as to inhibit or prevent the formation of metmyoglobin on the surface of the raw meat. The second package is sealed.